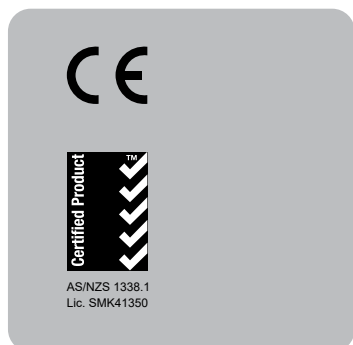
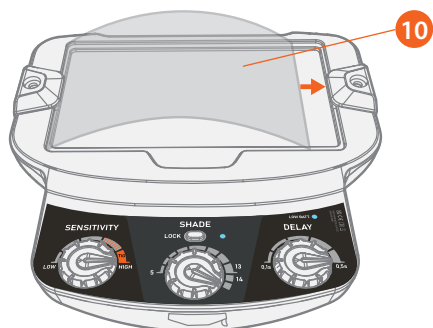
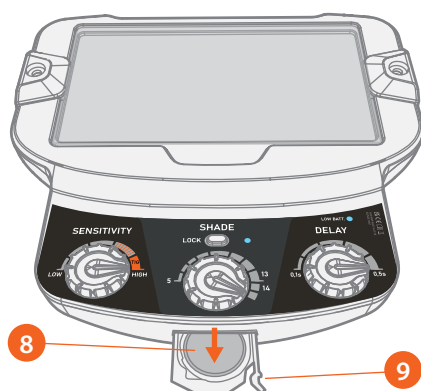
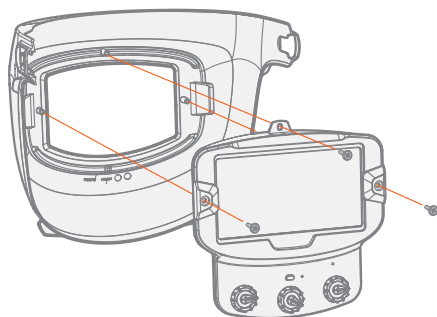
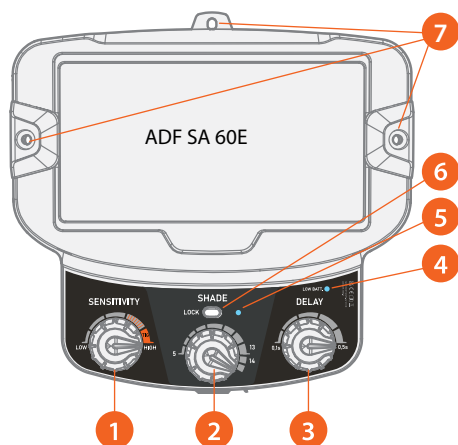


AUTO DARKENING WELDING FILTER

SA 60E

An orange circle containing the text "Operating manual" in white.

**Operating
manual**



1. Introduction

1.1 ADF SA 60E

The auto-darkening filter (ADF) is an electronic filter cassette that darkens from light state to a pre-selected dark shade when the welding arc is ignited. Select the appropriate shade before you start welding.

This product is designed to help protect your eyes from harmful radiation including visible light, ultra-violet radiation (UV) and infra-red radiation (IR) resulting from certain welding processes. ADF offers permanent protection against UV/IR rays, heat and sparks in any state from the light to the dark.

1.2 About this manual

Read this manual carefully before using the equipment for the first time. Pay particular attention to the safety instructions.

	Note	Gives the user a piece of information of particular importance.
	Caution	Describes a situation that may result in damage to the equipment or system.
	Warning	Describes a potentially dangerous situation that may result in personal damage or fatal injury.

1.3 Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

2. Safety



Warning:

- Stop using the ADF welding filter immediately if any signs of aging of the material appear.
- Inspect the ADF welding filter before each use. Check that the unit is undamaged and has the necessary level of protection. If unclear, consult your health and safety representative, otherwise protection cannot be guaranteed.
- Never use a scratched or damaged welding filter and ocular. If the filter is damaged, stop using the product immediately.
- If the filter is not working properly, it flickers, the dark degree value is not in accordance with the standard or other abnormal working behavior appears, stop using the product immediately.
- Do not expose this product to direct sunlight.
- ADF is not waterproof, keep it dry and clean, do not place it in a damp environment.

- The ADF welding filter must only be used for the work described in the operating manual. Any deviation from the instructions may cause injury or accidents. Using other than original accessories may lead to problems with the protective function, the effect of use and the degree of protection of the product.
- The product is not suitable for laser welding and oxyacetylene welding/cutting processes.
- The product is not fire resistant.
- Never place ADF on a hot surface.
- The product is not intended for use in environments with a risk of explosion.
- It is strictly forbidden to use any other than Kemppi branded parts or accessories with Kemppi's personal protection equipment. If you do not respect this safety regulation, serious damage for your health may occur.
- The recommended operating temperature is -5°C...+55°C. Do not use the ADF beyond this temperature range
- Always use automatic welding filters together with suitable protection plates.
- If the auto-darkening filter (ADF) does not darken when the arc ignites, stop welding immediately. Inspect the ADF and its power supply. Change if necessary.
- This protector is appropriate for the headform 1-M. Protector can affect the recognition of colours and / or signal light detection.
- Protectors that have been subject to impact shall not be used and shall be discarded and replaced.
- If the impact level symbols are not equal on both the lens/filter and the frame, then it is the lower level that shall be assigned to the complete protector.
- Not suitable for driving and road use.

The recommended maximum service life of the ADF filter unit is five years. The service life depends on various factors, such as usage, cleaning, storage and maintenance. Frequent inspections and replacement of damaged parts are required.

3. Parts

1. Sensitivity adjustment
2. Shade adjustment
3. Delay adjustment
4. Low battery indicator
5. Shade adjustment indicator
6. Shade adjustment lock
7. Fixing holes to welding mask
8. Battery
9. Battery tray
10. Inner protection plate

4. Replacing parts

4.1 ADF welding filter inner protection plate

1. To remove the ADF welding filter inner protection plate [10], pull the other side edge of the plate out (from under the frame) by pushing it slightly towards the center and pulling the plate out.
2. To install the ADF welding filter inner protection plate [10], place the other side edge of the plate under the frame and slightly push the opposite edge towards the center while placing the plate in its position under the frame. Make sure the plate snaps into place properly.

4.2 ADF welding filter battery

Immediately replace the battery when the low battery indicator and display flash.

1. To replace the ADF welding filter battery [8], pull the battery out along with the tray. [9]

5. Operation

Pre-Welding Check:

Choose the darkest shade number and set the sensitivity to the highest setting. Point the sensor towards a light source such as an overhead light, lamp etc. The auto-darkening lens should now switch to the dark state. If the auto-darkening lens darkens as per the shade setting, the ADF is functioning properly.

If the auto-darkening lens DOES NOT darken when the above procedures are followed, check if the battery needs to be replaced or if the sensors or protective plate are dirty. If the auto-darkening lens still does not darken, the filter may be defective and needs to be replaced.

Shade defines (2) how dark the ADF gets when the arc ignites. To select the optimal shade, see the Shade guide table.

Sensitivity defines (1) how easily the ADF photo-sensors respond to the arc light and trigger the darkening of the filter. Use low sensitivity for high welding currents and welding in bright lighting conditions, such as lamp light or sunlight. Use high sensitivity for low welding currents, welding in poor lighting conditions and when using a steady arc process, such as TIG welding process.

Delay defines (3) how long the ADF stays in the dark state to protect the eyes from the afterglow, when the arc is switched off. Use MIN delay time for tack welding and production welding with short welds. Use MAX delay time for welding at high amperage, where there is a strong afterglow from the weld.

There are four sensors on the lens. Once the welding arc is ignited, the lens will darken, but the user can still see the welding conditions clearly. When the welding arc is stopped, the filter automatically goes back to the bright state, and the user can see through the filter window. There is also a SHADE lock button that locks the set shade for the necessary time.

Shade lock function

By default, the shade lock is off (light is off).

1. Press the shade lock button (6): ADF goes to the shade that was adjusted earlier and the indicator blinks.
2. Adjust shade. The adjustment does not affect delay or sensitivity. In the shade lock mode, the ADF is basically an adjustable passive filter.
3. Press the shade lock button again: Shade lock is released, ADF goes to normal mode and shade indicator stops blinking.

6. Troubleshooting

Problem	Probable cause and recommended actions
The ADF does not darken or flickers.	Front cover lens is soiled or damaged. Change the cover lens. Sensors are soiled. Clean the sensors' surface.
Slow response	Operating temperature is too low. Do not use at temperatures below -5 °C (23 °F). Add sensitivity.
Poor vision	Protective lens and/or the ADF is soiled. Change the lens. There is insufficient ambient light.

7. Maintenance

Clean the ADF regularly (for example, when you change the protective lens). You can either wipe the surface with a clean, dry piece of cloth, clean it with a piece of smooth cloth moistened with pure alcohol, or clean it with commercial disinfectant. If used properly, the ADF requires no further maintenance during its lifetime.

The period of use depends on various factors such as use, cleaning, storage and maintenance.

Storage

Operating temperature: -5°C...+55°C (23°F...131°F).
Storage temperature: -10°C...+55°C (14°F...131°F). Store the ADF in a dry, cool and dark environment. If the ADF is not to be used for a prolonged period of time, remove the battery.

Disposal of the product

Do not dispose of the product with household waste. Follow the local laws and regulations on safe and ecological disposal of electronic devices.

8. Technical data

Welding filter	SA 60E
Welding filter type	Auto-darkening, factory-installed
Operating temperature range	– 5 ... + 55 °C <80% Rh
Storage temperature range	– 10 ... + 55 °C <80% Rh
Manufacturer	Kemppi Oy PL 13, Kempinkatu 1, 15801 Lahti, Finland
ADF switching time	0.1 ms
ADF light state	Shade 3
ADF UV/IR protection	Protection at all times
Battery, replaceable	1 x CR2450
Materials	Plastics: PA, PC; Glass
Casette size	150 mm x 151mm x 37.5 mm / 5.91" x 5.94" x 1.48"
Viewing field	115 mm x 60 mm / 3.94" x 2.36"
Shade range	Shade DIN 5 to DIN 14 Variable
Power ON/OFF	Fully automatic
Inner Cover Lens	120 mm x 65 mm x 1mm
Sensors	4
Sensitivity control	Knob adjustable
Delay Control	0.1...0.5 s, digitally adjustable
Solar cell	Yes
Shade control	LOCK button
Low battery indicator	Yes
Certification	CE, AS/NZS
Standard Compliance	Regulation (EU) 2016/425, EN ISO 16321-1:2022, EN ISO 16321-2:2021 AS/NZS 1338.1, Saiglobal license number SMK 41350
Type inspected by	DIN CERTCO Gesellschaft für Konformitätsbewertung GmbH, Notified body no. 0196, Alboinstraße 56, 12103 Berlin, Germany SAI Global Certification Services Pty Limited, Level 7, 45 Clarence Street, Sydney NSW 2000, Australia

9. ADF marking

Automatic welding filter	ADF SA 60E
Markings	16321 KMP W3 / 5-14 V1 CE
Welding filter	W
Light shade / dark shade range	3 / 5-14
Angle dependence class	V1
Number of standard	16321
Manufacturer identification	KMP
Number of standard for AS/NZS market	1338.1

10. Ordering codes

Part	Ordering code
ADF	SP026916
ADF inner protection plate, 5 pcs	SP028205

11. Shade guide table

Select the required shade level according to the welding process.

Refer to the "Shade guide table".

	MMA (E-Hand)	MIG, Ss	MIG, Al	TIG	MAG, (CO ₂)	Carbon arc gouging	Plasma cutting
15 A				9			
20 A	9			10			
30 A							
40 A	10				10		
60 A		10	10	11			
80 A					11		
100 A	11						11
125 A		11	11	12	12	10	
150 A							
175 A						11	
200 A			12	13			12
225 A	12	12			13	12	
250 A							
275 A			13	14		13	13
300 A							
350 A	13	13			14	14	
400 A			14				
450 A							
500 A	14	14	15		15	15	



Declaration of Conformity – Overensstemmelseserklæring – Konformitätserklärung
– Declaración de conformidad – Vaatimustenmukaisuusvakuutus – Déclaration
de conformité – Dichiarazione di conformità – Verklaring van overeenstemming –
Samsvarserklæring – Deklaracja zgodności – Declaração de conformidade – Declarație
de conformitate – Заявления о соответствии – Försäkran om överensstämmelse –
Uygunluk Beyanı – 符合性声明



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